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ABSTRACT

The Multiple Option Observation System for Experimental Studies (MOOSES) is a flexible data collection and analysis package for applied behavioral research that addresses the needs of researchers interested in live coding of observational data. MOOSES allows the researcher to design a coding system for a particular research question. General types of data that can be collected and analyzed include mutually exclusive events, toggles, and interval data. An extensive set of analyses is available, including: (1) frequency and duration; (2) interobserver agreement; (3) states within toggles; (4) sequential frequency analysis; and (5) visual analysis. Hardware requir ments, program operation, and a new PROCODER compatible version are described. (SLD)

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MOOSES: MULTIPLE OPTION OBSERVATION SYSTEM FOR EXPERIMENTAL STUDIES

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2

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MOOSES: MULTIPLE OPTION OBSERVATION SYSTEM FOR EXPERIMENTAL STUDIES

Introduction

Over the past 30 years the use of direct observation procedures increasingly has become an integral part of the study of human behavior. While in the past, relatively simple recording systems have been used, recent trends in the field of behavior analysis have established the need for more complex recording systems. Included in these trends has been the call for the continuous recording of target behaviors instead of less precise time sampling procedures. Ongoing collection of streams of behavior enhance our ability to develop hypotheses about variables which control behavior.

The collection of continuous data sets has been facilitated by advances in laptop computer technology over the last 5 years. The Multiple Option Observation System for Experimental Studies (MOOSES) is a flexible data collection and analysis package for applied behavior research that addresses the needs of researchers interested in live coding.

Data types

MOOSES allows you to design your own coding scheme for the question you are interested in. These three types of data can be collected simultaneously with each other or any one or two of the data types can be collected. The following general types of data can be collected and analyzed.

Mutually Exclusive Events

Events can be collected in a mutually exclusive coding scheme where the onset of a specific event also functions as the offset of the previous code. Codes can be defined by the user and entered into the data stream by either hitting the return key or by hitting a preset number of keystrokes.

Toggles

Toggled codes can be collected where one of the function keys turn the event on and off. Toggles have the advantage of not needing to be mutually exclusive. The display in the collection screen allows observers to easily keep track of the state of the toggle events. Toggles can also be set to be mutually exclusive if desired.

Interval Data

Data can also be collected on a fixed interval time sample basis. This option prompts the observer for a code every X seconds where X can be set as desired.

Analysis options

MOOSES has an extensive set of analyses available for your data. Each of the analyses listed below can be run on a single session file or on a list of session files. If a list is used the results of the analysis are pooled together and output either as a pooled only result or as the results for each individual sample as well as the pooled sample. Output from the analyses can be provided on the screen, to the printer or to a disk file in an ASCII format that is easily read into your favorite spreadsheet, database, or statistics program. Each of the analyses are described briefly below.

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Frequency and Duration

Many research questions can be addressed buy observing events under different conditions and examining the frequency and duration of observed events to see how they change with different circumstances. Frequency and duration output is available for all of the different data types.

Interobserver Agreement

This analysis allows you to asses the interobserver agreement between two observers. Two methods of assessing this are supplied: 1) A time window is formed around one observer's events and matches are scored as agreements. All unmatched codes are counted as disagreements and an A/(A+D) ration is computed. 2) Each second of the data is examined to determine whether the two coders are in agreement for that second. The number of seconds on agreement on occurrence and non occurrence are provided as well as a Cohen's Kappa.

States within Toggles

Many questions have to do with examining the variation in events during different states of the environment. This analysis is provided to help answer these types of questions by providing frequency and duration of event data during different toggle states.

Sequential Frequency Analysis

This analysis counts frequencies of target codes in a give time window of event window (lag) from a give code or set of given codes. The given and target codes can be selected by the user. The event or time window can be done either forward (ahead in time) or back from the given code(s).

Visual Analysis

Some relationships can easily be found by a visual analysis where the events and/or toggles are displayed on the screen graphically against a time line for the session. This type of analysis can lead to finding relationships across files that are not easily found in other ways.

Hardware Requirements

MOOSES is designed to run on MS-DOS (TM) based personal computers with at least 640 kilobytes (K) of RAM. The program requires approximately 400K of storage space on disk, but the data collection module is capable of running within about 80K of disk space to facilitate running the collection program on non-hard drive machines. Data files created by MOOSES are generally small (3-4K). The size of the files is totally dependent on the nature of the coding scheme and the duration and number of events recorded in the collection sessions.

Program Operation

The program runs using standard pull down type menus that can be operated using a mouse or with the keyboard using the <ALT> key and directional arrow keys to make menu selections. The program also using standard dialogue boxes to interact with the user. The setup menu allows the users to tailor data collection and analysis procedures for a particular research project. Types of analysis include frequency and duration of discrete events, frequency of general behavior states, frequency and duration of events within behavioral states, percent interval analysis, sequential analysis and inter-

observer agreement. The system outputs results from all the different analyses to either the screen, a printer, or a disk file in comma delimited format. Data obtained from MOOSES to be easily incorporated with other data for further statistical analysis using standard statistical packages or popular spreadsheet programs.

New PROCODER compatible version in development

Version 1.78 is currently available. Version 2.0 will be out this summer and will be able to read and analyze PROCODER data collected from tape coding stations as well as data collected with MOOSES. People who have purchased the older version of MOOSES will receive the new version free of charge. We also expect to release the much requested Macintosh version of PROCODER this summer. We are also working on an article (in press) for Behavior Research Methods, Instruments and Computers journal about MOOSES this year.

Availability

Persons who wish to acquire MOOSES should contact Jon Tapp or Joseph Wehby by phone or electronic mail. We are currently negotiating a licensing agreement with Vanderbilt and we anticipate the software will cost around $450 to $500.

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